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INCREASED EFFICIENCY IN OIL-WELL DRILLING AND PETROLEUM EXTRACTION IN THE USSR

TUYMAZY DRILLERS SUBSTITUTE WATER FOR MUD IN DRILLING -- Moscow, Izvestiya, 17 Feb 53

In line with the Stakhanovite experience of petroleum workers of the Bashkirskiy ASSR, engineers of Drilling Office No 1 of the Tuymazaburneft' Trust proposed drilling stable rock with the aid of pure water instead of fluid mud in working deposits of the Tuymazy type.

The cycle of drilling wells is divided into three stages: The first stage consists of drilling unstable rock when fluid mud is used to move the pieces of broken rock away from the operational front and bring them to the surface, and to plaster the walls of the well and prevent them from caving in. The second stage consists of drilling hard rock which lies in a deep layer and stretches to a depth of 1,200-1,400 meters. Here water is used to flush the operational front instead of mud. The walls in this section of the well do not need reinforcement since they are composed of hard rock not subject to caving. The third and last stage of drilling begins with the entry into the productive horizon. When this occurs, the drilling brigade adds water and increased amounts of chemical reagents to the fluid mud without stopping drilling operations. Water plus suitable chemical reagents may eliminate the need of using mud in the final stage of drilling; scientific establishments of Ufa and Moscow should express their opinion on this point.

The substitution of water for mud will simplify the operation of the mud pumps and turbodrills considerably. The productivity of the pumps is being stepped up and the rock-cutting capacity of the turbodrill is rising.

Data for seven wells which use water instead of mud indicate that the mechanical speed in drilling has gone up 40 percent and, at the same time, the cutting power of the bit has increased one third. As a result of using this method of drilling, less sand and particles of drilled rock fall into the turbodrill, length of periods between repair is increased 18.5 percent, and the number of meters drilled in the periods between repair is increased 77 percent.

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The new method of drilling is particularly important for the Bashkirskiy ASSR and similar regions since the high-grade clays required for the fluid mud are not found in this area. Large amounts of caustic and calcined soda have to be added to the mud to bring it up to required quality specifications.

The substitution of water for mud in drilling will reduce drilling costs considerably. Taking into account the amount of drilling planned for the Tuymazaburneft' Trust for 1953, savings will total 17 million rubles.

USE OF DEEP-WELL PUMPS CUTS CONSUMPTION OF ELECTRIC POWER -- Moscow, Za Ekonomiyu Materialov, No 4, 1952

A great deal of electric power is consumed in all phases of the petroleum industry; however, about 60 percent of the total is consumed in petroleum extraction. One of the chief measures for curtailing the consumption of electric power in petroleum extraction, particularly in oil fields of the Azneft' Association, is the conversion of low-yield wells from the compressor method of extraction to exploitation by deep-well pumps.

Liquid is raised to the surface of nonflowing wells either by the employment of deep-well pumps or by the compressor method using either compressed air or gas. The consumption of electric power per ton of petroleum extracted by the compressor method exceeds the consumption per ton by the deep-well pump method five to seven times.

In recent years the proportion of petroleum extraction by the compressor method has decreased, with a simultaneous increase in extraction by the deep-well pump method. Particularly wide use has been made of the compressor method of extraction in enterprises of the Azneft' Association, but during the past 3 years the proportion of this method in the total amount of extraction has dropped 10 percent, and use of the deep-well pump method has increased. By adopting the deep-well pump method, 25 oil wells of the Stalinneft' Trust saved 1,400,000 kilowatt-hours of electric power in one year alone. The conversion of Azneft' oil wells to the deep-well pump method planned for 1952 will save the association more than 30 million kilowatt-hours of electric power.

However, despite the expediency of converting low-yield wells from the compressor method to the deep-well pump method, neither the Azneft' nor the Azmorneft' Association is completely fulfilling the plan drawn up by the Ministry of the Petroleum Industry for such a conversion.

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